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FACED BUILDING PANEL

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(57) Claim

1. A faced building panel comprising a core, a first generally planar facing sheet fixed on one face of the core and a second generally planar facing sheet fixed on the opposite face of the core, the core comprising a foamed concrete and/or a concrete formed with lightweight aggregate, the first facing sheet being of fibre reinforced cementitious construction and being bonded to the core substantially solely through adhesion of cement in the core with the facing material, an outer surface of at least one of the facing sheets being provided with an inwardly stepped edge rebate.

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C O M P L E T E S P E C I F I C A T I O N

FOR A STANDARD PATENT

O R I G I N A L

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Invention Title: "FACED BUILDING PANEL"

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The following statement is a full description of this invention,
including the best method of performing it known to me/us:-

The present invention relates to building panels and in particular to faced building panels comprising a central cementitious core faced on each opposite surface with a facing sheet.

5 Panels of this form are well known and have provided a fast and simple means of constructing walls, partitions and the like. However, some of the advantages of "drywalling" as this system is known, are reduced by the problems associated with joining adjacent panels.

10 It has been found that the simple wedge form of tapered recess presents difficulties in jointing. The taper results in the layers of compound being thinned at the edges and over the reinforcement tape. Where thinned, the jointing compound is liable to dry out
15 through water evaporation, before it sets. This results in a weak friable joint edge, requiring subsequent repair.

 It will be appreciated that such a procedure is very time consuming and requires substantial skill and wasteful repair work in order to achieve satisfactory and
20 consistent results.

 It is an object of the present invention to overcome or at least ameliorate the above discussed disadvantages of the prior art.

 According to the invention there is provided a
25 faced building panel comprising a core, a first generally planar facing sheet fixed on one face of the core and a second generally planar facing sheet fixed on the opposite face of the core, the core comprising a foamed

concrete and/or a concrete formed with lightweight aggregate, the first facing sheet being of fibre reinforced cementitious construction and being bonded to the core substantially solely through adhesion of cement in the core with the facing material, an outer surface of at least one of the facing sheets being provided with an inwardly stepped edge rebate.

Preferably, the rebate where stepped defines a substantially square edge bounding an outer surface of the first facing sheet. It is further preferred that the rebate is formed within the facing sheet alone and does not extend to the core.

In preference, the width of the rebate is between 20mm and 40mm and in one preferred embodiment is 30mm. Preferably the depth of the rebate is around 1.0 to 1.5mm.

Desirably, the rebate also tapers inwardly in a direction toward the edge of the panel, such that the depth of the rebate adjacent a free edge of the facing sheet is greater than the depth of the rebate adjacent the stepped substantially square edge. This provides extra depth over the gap between the panels and under the reinforcing tape giving sufficient depth for the first layer of jointing compound. Such a rebate is easily ground using a flat grinding wheel.

It is further preferred that the recessed surface of the rebate is sealed against moisture penetration.

This helps to ensure the jointing compound sets before drying due to moisture loss into the facing sheet.

In a preferred embodiment the core of the panel is also profiled to nestingly interlock with an adjacent
5 panel in, for example, a tongue and groove type formation.

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a schematic sectional side view of two
10 abutting building panels according to the invention.

Figure 2 is an enlarged segmented sectional view of the panel facing sheet rebate shown in Figure 1.

Figure 3 is an enlarged segmented view of the panels shown in Figure 1 illustrating the completed joint.

15 Referring first to Figure 1, each building panel 1 comprises a core 2, a first facing sheet 3 fixed on one face of the core and a second facing sheet 4 fixed on the opposite face of the core.

20 The core 2 comprises a foamed concrete and/or a concrete formed with a lightweight aggregate such as expanded polystyrene beads.

The first facing sheet 3 is formed of fibre reinforced cementitious construction and is bonded to the core 2 through adhesion of cement in the core with the
25 facing material.

A rebate 6 is provided along one edge of the panel 1 which is stepped inwardly toward the core and which

defines a substantially square edge 7 bounding an outer surface 5 of the first facing sheet 3. In the embodiment illustrated the rebated surface has a width of approximately 30mm and a depth of 1 to 1.5mm.

5 The cores 2 of the panels 1 are profiled to form along one edge a longitudinally extending protuberance 8 that corresponds with a longitudinally extending recess 9 provided in the adjacent panel.

 Referring now to figure 2, it can be seen that the
10 rebate 6 tapers more deeply inwardly toward a free edge 10 of the facing sheet 3. In this way the depth of the rebate 6 adjacent the free edge 10 is greater than the depth of the rebate adjacent the stepped substantially square edge 7. It should be noted that the stepped edge
15 7 in the preferred embodiment is approximately 20° from square in order to blunt the edge sufficiently to make it less susceptible to damage.

 The panel facing sheets comprise some form of fibre reinforced cementitious board having, for example,
20 cellulose fibre and/or asbestos fibre reinforcing in a cement and/or siliceous matrix.

 Similarly, the core material is either a lightweight foamed concrete or concrete having a lightweight aggregate such as polystyrene foam beads.

25 This preferred combination results in a high strength lightweight panel that is easy to handle and

which in some forms is suitable for use where a fire resistance is required.

In use, the panels are positioned in interlocking engagement as illustrated in Figures 1 & 3.

5 Jointing compound 13 is placed into the cavity 12 formed by the adjoining rebates 6 and a strip of reinforced paper tape 11 or other suitable tape is then placed across the join and embedded in the jointing compound 13. A second layer of jointing compound 13 is
10 applied over reinforcing tape 11. Then the remainder of the recess is filled with a band of finishing cement or topping compound 13 flush with the substantially square edges 7. After the compound cures and dries, the joint can if necessary then be sanded flush against the
15 substantially square edges 7.

Because the joint is formed within the cavity 12 formed between the adjoining rebates 6, the compound 13 does not have to be feathered out beyond the substantially square edges 7.

20 It can be seen that this construction eliminates lumpiness at the joint and produces a flush joint with less consumption of materials than were previously required.

Furthermore, it has been shown that the performance
25 of the joint is enhanced in that it also provides superior cracking resistance over the prior art joints, because the jointing compound is cured before drying.

The construction also avoids the need for using sealants which often promote cracking.

Another major advantage resulting from the present invention is that not only can the task be performed by
5 less expensive unskilled labour, the time required to complete a joint is also substantially reduced. This is because the joint is formed using the essentially square edges 7 as guides.

In other embodiments the rebate may be a different
10 cross-sectional shape and may include, for example, multiple steps. Similarly, the panel may comprise facing sheets of materials other than those described or a combination of different materials.

Although the invention has been described with
15 reference to specific examples, it will be appreciated by those skilled in the art that the invention may be embodied in many other forms.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A faced building panel comprising a core, a first generally planar facing sheet fixed on one face of the core and a second generally planar facing sheet fixed on the opposite face of the core, the core comprising a
5 foamed concrete and/or a concrete formed with lightweight aggregate, the first facing sheet being of fibre reinforced cementitious construction and being bonded to the core substantially solely through adhesion of cement in the core with the facing material, an outer surface of
10 at least one of the facing sheets being provided with an inwardly stepped edge rebate.
2. A building panel as claimed in claim 1 wherein said rebate defines a substantially square edge bounding said outer surface of said first facing sheet.
- 15 3. A building panel as claimed in claim 2 wherein said rebate is formed extending within said facing sheet.
4. A building panel as claimed in claim 1 or claim 2 wherein the depth of said rebate increases toward the free edge of the sheet to form a taper.
- 20 5. A building panel as claimed in any one of claims 1 to 4 wherein the width of said rebate is between 20mm and 40mm.
6. A building panel as claimed in any one of claims 1 to 4 wherein the width of said rebate is about 30mm.
- 25 7. A building panel as claimed in any one of claims 1 to 6 wherein the depth of said rebate is between 1.0 to 1.5mm.



8. A building panel as claimed in any one of claims 1 to 7 wherein the surface of the rebate is sealed against moisture penetration.

9. A building panel as claimed in any one of claims 1
5 to 8 wherein opposed sides of said panel are respectively provided with mating formations to provide for resting engagement between adjacent like panels.

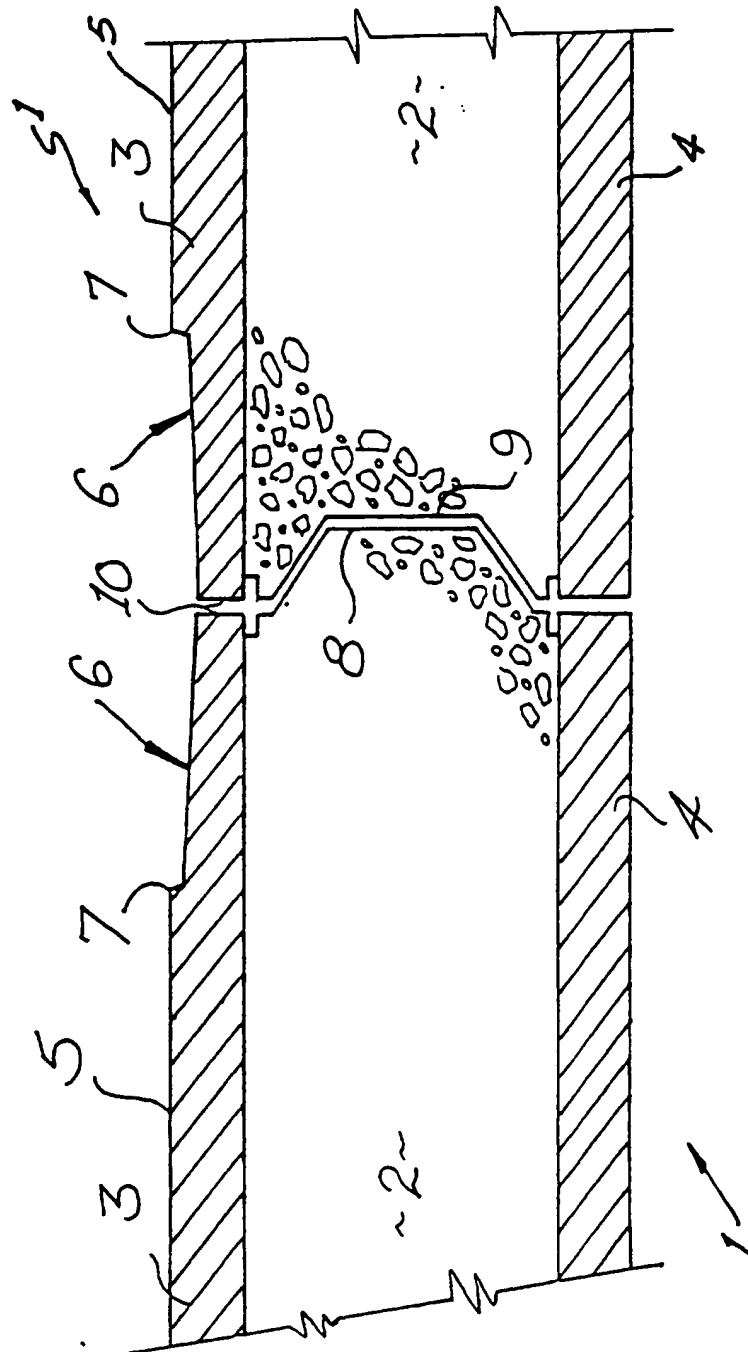
10. A building panel substantially as herein described with reference to the accompanying drawings.

DATED this 5th day of June 1995

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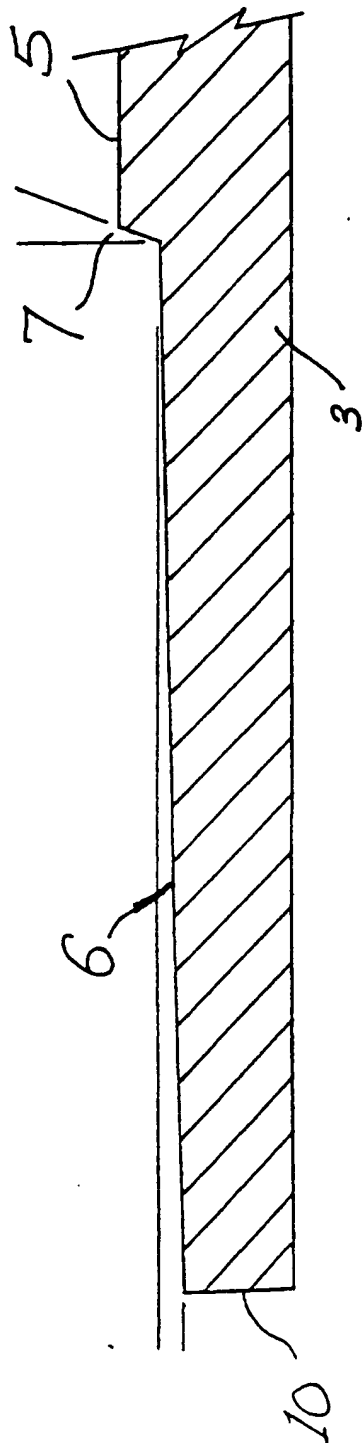


FIG. 2

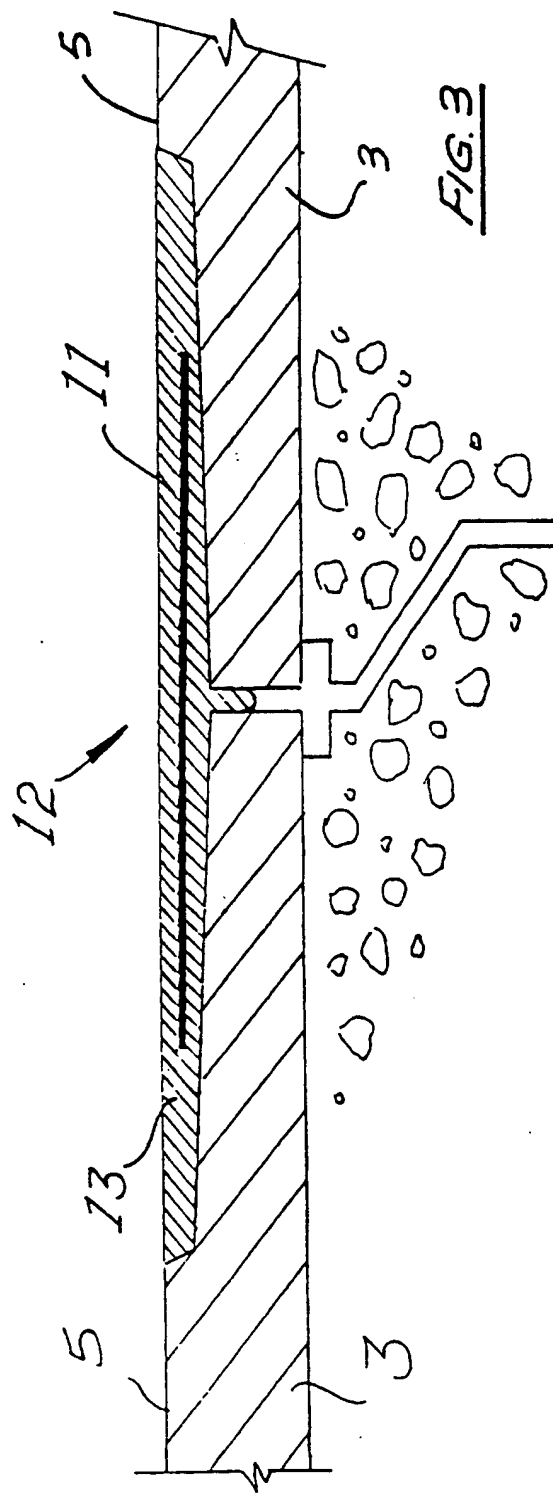


FIG. 3